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AIR POWER TRAINING IN THE USAF:
REALISTIC AND JOINT

by

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ABSTRACT

TITLE: Air Power Training in the USAF: Realistic and
Joint

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The USAF's emphasis on realistic combat training has resulted in better prepared aircrews meeting the challenges of combat in a constantly changing inter-national arena. This highly effective method of training grew out of an effort to avoid the mistakes made in previous air power operations, as is evident from Vietnam. The USAF's ability to respond effectively to future challenges regarding national interests requires continued emphasis on realistic combat training in single service, joint warfighting and combined operations arenas. Of particular importance to the modern day Air Force are the lessons learned beginning with operations in the Vietnam War and go through the Gulf War. These lessons clearly point out why air power projection strategy must be tailored to the national objectives, and the results which may occur if there is a misapplication of this military asset. An historical review of some important lessons learned, the type of training the USAF is conducting in FY95, and where the Air Force must go to meet future challenges will provide an overall assessment of "Air Power Training In The USAF."

BIOGRAPHICAL SKETCH

Lieutenant Colonel John T. Davee (M.S.I.S., Golden Gate University) entered the United States Air Force as an Undergraduate Pilot Training student in 1976, a time when the post-Vietnam military drawdown was reshaping the USAF's training methodologies. He is a Command Pilot with operational assignments in the F-4E, F-5, and F-16 fighter aircraft, and a graduate of both the USAF Adversary Tactics Instructor Course and the USN Strike Leader Attack Training Course. Prior to his tour of duty in the Operations Directorate, J-3, The Joint Staff he spent a considerable amount of his career instructing on tactical aviation. Lieutenant Colonel Davee is a distinguished graduate of the USAF Squadron Officer School, a 1988 graduate of the Armed Forces Staff College, and a member of the Air War College class of 1995.

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CHAPTER I

INTRODUCTION

Thesis

The USAF's emphasis on realistic combat training has resulted in better prepared aircrews meeting the challenges of combat in a constantly changing inter-national arena. This highly effective method of training grew out of a post Vietnam War effort to avoid the mistakes made in previous air power operations. The USAF's ability to respond effectively to U.S. national interests requires continued emphasis on realistic combat training in single service and joint warfighting arenas. Of particular importance to the modern day Air Force are the lessons learned from the Vietnam War and the successive applications of air power, which includes the Gulf War. These lessons clearly point out the reasons air power strategy must be tailored to the national objectives, the consequences of misapplying air power, and the advantages of joint warfighting for the United States' Armed Forces. This paper will begin with an historical review of some important air power lessons from previous military operations, then look at the current realistic combat training the USAF is conducting, next it will examine the need for joint training, and finally it will conclude with some future challenges the Air Force may encounter in the joint warfighting arena. The objective of this paper is to provide a limited assessment of air power training in the USAF today. When considering the current pressures generated by a declining defense budget, the ongoing post-Cold War military drawdown, and the increased involvement of U.S. Armed Forces in joint operations other than war, an assessment of where the USAF is today will help us better prepare for tomorrow.

Budget Constraints

When viewed from the perspective of the not-so-distant Reagan Administration's Department of Defense, U.S. defense spending has decreased significantly from the levels attained during the Cold War. "When measured against the Air Force of the mid-1980s, today's force is noticeably leaner. Annual spending and the number of combat aircraft have been reduced by about fifty percent."¹ The sharp decline of our modern day defense budget began during the Bush Administration as a result of the Soviet Union's demise, the end of the Cold War, and congressional pressures to reduce the budget deficit. Each succeeding defense budget reduction brought with it a new set of challenges for policy makers and military leaders regarding national security interests and the overall structure of the Armed Forces. Decisions made during the budget cycles with respect to personnel, training, and acquisition will shape the military force structure well into the first decade of the twenty-first century. One key concern of our national leaders is how will the United States adjust to reduced levels of military spending while downsizing the force structure and still fulfill the national security objectives, especially in an environment where the operations tempo (optempo) has increased dramatically?

These concerns were evident to Secretary of Defense Perry as he took over stewardship of the Department of Defense (DoD). He energized the DoD leadership and began taking action almost immediately. Military readiness and training became a prime focus. Budget constraints motivated the DOD staff and military services to minimize duplication, exploit technology as a force multiplier, and to operate more in a joint arena,

where sister services provide complementary warfighting capabilities. As the military's participation in operations other than war continued to grow, more emphasis was placed on each Service's complementary capabilities which allowed the burden to be distributed. However, as contingency operations began devouring available funds, the Air Force and its sister services started looking for ways to pay their bills. They began reprogramming their Operations and Maintenance (O&M) accounts to meet the shortfalls.

These O & M accounts contain the funding for operations related to training and military engagements known as optempo dollars. Optempo dollars support such things as aircraft flying hours, ship steaming days and tank and vehicle miles.² The reprogramming of training funds to cover unplanned contingency operation expenses resulted in several instances of severely reduced or completely eliminated training opportunities. Many of these opportunities, which may only occur on an annual basis, focus on realistic combat training based on expected wartime taskings. "With new challenges and declining budgets, there is a need to maximize the potential for training realism as well as relevancy."³ Commanders bemoaned the loss of this crucial training stating that it directly impacted unit readiness. Their views pointed out that realistic training significantly enhanced their unit cohesion and combat skills.

As the resource base continues to decline, even more attention must be paid to careful and efficient management of training dollars within all of DOD. It appears defense spending will continue to be cut. Prior to his retirement, General McPeak reinforced this notion by stating, "I am absolutely convinced that we have not seen the bottom of this defense drawdown yet."⁴ With steadily dropping defense budgets and the increased pressure to eliminate duplication among the Armed Forces, the services have acquired a new focus on jointness.⁵ What this means is with limited resources and smaller forces available, the Armed Forces must be employed as a warfighting team. In order to maximize our potential, each and everyone of us must understand how to contribute to that team.⁶ Funds are too scarce to squander on anything that is not relevant or absolutely necessary. Realistic training, especially within a joint context, ensures our forces are better team members and that training funds are wisely spent. The current emphasis on realistic training grew out of the experiences from the Vietnam War.

Realistic Training

The resultant political and military defeat the U.S. experienced from the Vietnam War brought about doubts concerning the Armed Forces ability and will to employ sustained military power in pursuit of national objectives. Air combat training prior to and during the Vietnam War was inadequate both in the focus and quality of the training received. As a consequence of flight safety concerns, air-to-air training was largely constrained to meet strict safety standards. Participation in large force employment tactics and dynamic multi-bogey engagements were prohibited. Even discussion of their incorporation into combat training was highly discouraged because of preconceived effects on already unacceptable flight training mishap rates. Tactics were obviously stagnant. They required pre-approval for employment, were limited to small numbers of participants, and were often scripted to minimize accident potential. This approach ignored the complexity of the Vietnam air combat environment and severely limited the training's effectiveness. Essentially, it was training at the expense of realism and bore little resemblance to the way combat aircrews were going to fight in the skies over

Southwest Asia.⁷ The post-Vietnam leadership recognized the need to restructure the Armed Forces' warfighting strategy and correct the training shortfalls which had occurred during the Vietnam War.

Key to this restructuring was enlightened leadership which recognized the need for highly trained forces to support the military strategy required by diverse U.S. strategic interests. The military leaders identified the task at hand, empowered their people to make decisions, and pursued ideas for continual improvement of the methods employed. They understood that those most familiar with the problems and shortfalls should be entrusted to make the changes and decisions necessary to achieve more realistic training.⁸ Many of the lessons learned from previous military operations were reviewed by the leadership to avoid their recurrence in future contingencies. Training programs were revamped to more accurately reflect expected taskings with emphasis placed on realism. Realism through anticipation of the threat and learning how to perform the combat mission. The leader's ability to tailor training to the unit's needs was not only empowerment, it became a basic tenet of leadership.

Then, as is true today, empowerment was within the context of providing a focus for the subordinates' energies. "Good military leaders give some latitude to those who have been trained to make decisions themselves."⁹ They empower subordinates to make improvements because they also have a vested interest in the outcome. Continual improvement requires wise investing of limited resources in an effort to further improve the product. In this instance the improvements were focused on the refinement and development of combat tactics which continually incorporated innovation, technology, and leadership vision. As has been pointed out "constant improvement can be a good thing if it is used to motivate against a casual acceptance of the status quo way of doing things."¹⁰

Intelligent commanders and aircrews do not accept the status quo just because "that is the way it has always been done." They strive to understand the capabilities and limitations of air power. Realistic combat training imparts the expertise, knowledge, and "fog of war" experience in a non-hostile environment to combat leaders so they may effectively employ combat forces in future operations. The Air Force's realistic combat training is principally based on the lessons learned from previous military operations. It derives momentum from initiatives originally designed to avoid the air power mistakes made during the Vietnam War. Realistic combat training exposes combat forces and combat support forces to the myriad of missions possible in the international environment. To be effective, realistic combat training must be a dynamic process incorporating the constant changes of the international arena with the national interests and evolving threat environments. To fully appreciate the USAF's realistic combat training programs today, a review of a few historical lessons beginning with the Vietnam War is warranted.

CHAPTER II

HISTORICAL LESSONS

Vietnam

The United States intervened in Vietnam to block the apparent march of a Soviet directed Communism across Asia.¹¹ The twelve year American involvement in Vietnam began in the month that (President) Kennedy took office and agreed to send President Diem of South Vietnam more military aid to combat the rising strength of the Viet Cong (VC) insurgency.¹² Subsequently, President Johnson and his administration took a keen interest in executing the military operations in Vietnam to support their political agendas. Their nearly complete exclusion of professional military counsel on operations in Vietnam, combined with the micromanagement style of the Johnson administration, resulted in a strategy that was haphazard rather than refined.

President Johnson and his key advisors failed to comprehend the effective use of air power in Vietnam. When President Johnson launched Operation Rolling Thunder, a sustained bombing campaign against North Vietnam, his objective was to pressure the North Vietnamese into negotiations, which would end the insurgent war. His strategy was a gradual application of air power which would force the Vietnamese to negotiate when the intensity reached their saturation point. This strategy virtually guaranteed a failure by the military forces to achieve the administration's objectives. It conflicted with the lessons of history which pointed to the effectiveness of intense air power campaigns that strike the enemy's center of gravity forcing capitulation. Needless to say, the strategy did not work and America found itself more deeply involved than desired. This was the situation which President Nixon inherited upon entering office. After much diplomatic maneuvering, President Nixon was successful at fulfilling his campaign vow to withdraw from Vietnam.

Following the US withdrawal from Vietnam, the American leadership began reviewing the failures experienced and their implications. Vietnam not only made clearer the improbability of global containment of communism, it awakened the leadership to the limitations of US military power engaged in limited warfare.

Many of the participants in the war concluded that America's failure was essentially instrumental, a result of the improper use of available tools.¹³ However, several historians fault the military leadership for failing to develop a strategy which employed air power within the restrictions imposed. Others felt the U.S. lost because it did not act decisively. Regardless of how the blame was placed, Americans developed an onerous belief that, if a nation becomes involved in a war again, it must employ its military power with a view toward winning.¹⁴ It was on the basis of this belief that USAF adjustments to training programs were initiated.

Feedback received from Vietnam experienced aircrews was crucial to the development and structuring of realistic combat training programs. This feedback assured program designers of the quality, relevance and flexibility of the training to counter current threats and anticipate future developments. One of these developments, where realistic training proved its relevance, was Operation El Dorado Canyon.

El Dorado Canyon

During the early 1980s, Libyan President Muammar Al-Qadhafi began subsidizing the terrorist activities of the Palestine Liberation Organization throughout the Middle East and Europe. By autumn of 1985, Qadhafi was maintaining at least twenty two terrorist training camps; he was implicated in the high-jacking of the Italian cruise liner Achille Lauro; and he was involved in the two attacks on civilians at the Rome and Vienna Airports. These incidents resulted in the loss of American lives, which prompted Washington to issue a warning that terrorism would be met with a strong U.S. military response.

In April 1986 a US serviceman was killed in the bombing of a Berlin discotheque. Evidence of Libyan involvement prompted an American reply which invoked the right of self defense. This military response was Operation El Dorado Canyon, a joint USAF/USN air attack on Libyan military and terrorist targets. The operation was judged a qualified success for having damaged and destroyed most of the targets. However, the loss of one aircraft and two lives, coupled with numerous joint force coordination problems, prompted a comprehensive review of the operation. The objective was to learn from the mistakes in order to avoid their recurrence in future joint operations. A subsequent joint operation involving USAF assets which benefited from the El Dorado Canyon review was Operation Just Cause.

Just Cause

For the two years preceding Operation Just Cause, Panamanian dictator General Manuel Noriega was increasingly antagonistic and hostile towards the United States and its military personnel stationed in Panama. The culmination of election fraud, numerous harassment incidents, and the death of US Marine Lieutenant Paz by Panamanian military forces ultimately resulted in US military action to protect its citizens and safeguard national interests. On December 20th, 1989 the U.S. intervened militarily in Panama to depose Noriega and replace his regime with the duly elected Endara government. This preplanned and rehearsed joint operation was limited in scope and unique in conduct. The use of overwhelming force to rapidly immobilize and destroy the enemy was a departure from previous thinking concerning economy of force. Service rivalries were put aside resulting in a force structure based on the specialties required for the mission.

The armed forces drew on their complementary capabilities, integrated them into a cohesive plan, and achieved the operational objectives with minimum loss of life. Just Cause was an immensely successful joint operation, having been planned and executed by soldiers without the interference of bureaucrats, a prevalent factor during President Johnson's Vietnam War involvement. The DOD and military leadership conveyed their pleasure with the operation by pointing out that "Very little went wrong in Just Cause and, when one considers the complexity of the operation, the reason--good training--soon becomes evident."¹⁵ The successful conduct of Just Cause was considered another important stepping stone for joint operations - the prime ingredient of the Gulf War successes.

Gulf War

The Iraqi invasion of Kuwait on August 2nd, 1990 surprised Western and Arab world leaders, as well as their intelligence communities. The United Nations (UN)

Security Council immediately condemned this expansionist activity and began putting pressure on Iraq to withdraw from Kuwait. Over the next several months, pressure was applied in the form of UN resolutions instituting economic sanctions, a maritime embargo, an air blockade, and authorized use of force to restore regional peace and security. A deadline requiring Iraqi withdrawal from Kuwait was established for January 15th, 1991.

As time advanced toward the deadline, coalition nations deployed and positioned their forces throughout the Persian Gulf region. Once in place, they began military training operations to emphasize their presence and resolve. As the deadline drew near, it appeared war was imminent. Iraq had made no effort to withdraw its forces. At 0200 hours local on January 17th, 1991 the liberation of Kuwait began with a vengeance as the multinational Operation Desert Storm - commenced air strikes on military targets in the Iraqi capital of Baghdad. During the next several weeks, coalition air forces established air superiority over Kuwait and Iraq, decimated the Iraqi air defense system, mauled Iraqi ground units and prepared the battlefield for the ensuing ground war. Air power was so effective at accomplishing its mission that ground forces progressed rapidly through the Kuwaiti Theater of Operations. In a mere 100 hours of ground fighting, the Iraqi ground forces were defeated.

Hostilities were terminated on February 27th, 1991 with the formal cease-fire documents being signed on March 3rd, 1991. During the Gulf War the coalition forces, under the central leadership of General Norman Schwarzkopf, remained focused on their primary objective - ejecting Iraqi forces from Kuwait. "A review of the Gulf War draws one to the conclusion that air power was clearly of crucial importance in winning a quick victory (once the land battle had begun) and in minimizing casualties."¹⁶ Success in achieving this objective can be attributed to numerous elements which include: outstanding leadership; a superb logistics system; sophisticated conventional weaponry; realistic combat training; and superior military doctrine for the effective employment of force. Attainment of these successes was achieved as a result of numerous training improvements incorporated since the Vietnam War. The Gulf War proved realistic combat training is invaluable training, and that joint warfighting can have a synergistic effect which proves overwhelming to the enemy.

Each of these operations reinforced an attitude held by many senior military leaders that joint training was essential, and it needed to emphasize realism and joint interoperability. "Though many of us identify joint warfighting with operations such as Desert Storm in the Persian Gulf, El Dorado Canyon in Libya, and Just Cause in Panama, these were only the latest in a long series of events."¹⁷ The Armed Forces have a lengthy history of conducting joint military operations. However, the situation which occurred following previous joint military operations, i.e. pre-Goldwater-Nichols legislation, was the dissolution of the joint force structure and the resultant decline in joint training. The Services simply returned to business as usual, where the focus was on independent service capacity not interdependent warfighting capability. Joint warfighting and interoperability were definitely not priorities. Even the concept of realistic combat training was not introduced into the services' training programs until after the Vietnam War, and that was a hard fought, slow process. Fortunately for USAF and USN aircrews, the airpower lessons learned from the poor air combat performance in Vietnam gave birth to realistic training programs such as the Air Force's Red Flag exercises and the Navy's Top Gun training program.¹⁸ A closer look at the elements of realistic combat training

from a USAF perspective is warranted by the air power successes of these military operations.

CHAPTER III

USAF REALISTIC TRAINING EXERCISES TODAY

Realistic combat training provides a simulated wartime environment where warriors can experience the “fog and friction” of war without the consequences of a lethal opposing force. Air Force specific training and exercises are designed to build upon the base level of knowledge or skills its members must acquire prior to receiving more advanced combat training in exercises like Air Warrior or Red Flag. The effectiveness of this training is minimized or counterproductive if unqualified personnel are injected prior to being ready. Red Flag and Air Warrior emphasize real-world scenarios by employing live munitions, developing and operating in anticipated threat environments, and integrating opposing forces with capabilities prevalent in the international arena. Both of these exercises expose USAF crews to the capabilities and operational concerns our sister services and allies bring to the joint and coalition warfighting arenas. As was demonstrated by the Gulf War, “the new world setting of uncertain geopolitical circumstances requires that “real” readiness be measured by a unit’s ability to operate as part of a joint or combined task force.”¹⁹ Although primarily Air Force exercises, Red Flag and Air Warrior involve sister service units and often times allied forces. This exposure to joint operations provides the trainees a fundamental understanding of the requirements for interoperability and a knowledge of complementary capabilities.

Red Flag

As a result of lessons learned from US participation in the Vietnam war and military operations Eagle Claw in Iran (a.k.a. Desert One), Urgent Fury in Granada, El Dorado Canyon in Libya, Just Cause in Panama and Desert Storm in the Persian Gulf, the Tactical Air Command (TAC), and its successor Air Combat Command (ACC), continue to place significant emphasis on realistic combat training to enhance aircrew survivability. The genesis of this emphasis came from a concern for the USAF’s poor performance during the Vietnam War, a direct result of a nuclear trained force making a sudden transition to latent conventional fighter tactics. This transition was not without a high cost, aircrew survival was very low during the first ten combat missions. These initial missions were considered the critical ones since it normally took inexperienced aircrews this long to acclimate to the demands of combat. With completion of the first ten missions an individual’s personal survival improved dramatically. In 1975, at the conclusion of the Vietnam War, TAC developed the Red Flag exercises to save aircrews and aircraft in a future conflict by applying skills learned from an intense, realistic training program during peacetime.²⁰

Prior to the development of Red Flag exercises, several enhancements to aircrew training had been incorporated by the TAC staff, yet training still lacked realism. Aircrew were mainly operating in small forces on local ranges in a benign environment where standardized routing, target familiarity, and lack of threat simulators hampered realism. The advent of the Red Flag exercise program was the result of an initiative by the TAC Commander, General Robert J. Dixon, and his staff to provide intensive, realistic combat training to enhance force survivability.

The Red Flag charter is to enhance the combat readiness and survivability of combat crews and their supporting units in a realistic threat environment. Combined and

joint force tactics are developed and executed in a regionally oriented scenario which employs air-to-surface, air-to-air and electronic combat assets against an adversary force which closely replicates the expected threat. Exercise participants often experience the problems and circumstances encountered in real-world taskings. Some of these are planned, while others develop as a result of prevailing conditions or individual planning failures. The ability to cope with these problems results in the execution of alternative planning further promoting realism in training. Following mission completion, a discussion of the tactics employed and lessons learned from each mock battle are reviewed in individual and collective debriefings. These invaluable debriefings are where the learning experiences come to fruition. They are a critical review of the overall campaign for that day to include: the coordination and execution phases, the successes for the given circumstances, and how can the next plan be improved to enhance mission success while minimizing friendly losses. The realism of the Red Flag exercises permits the warriors to experience the “fog and friction” of war without the deadly consequences. As is often heard during the mission debriefings “This is what Red Flag is all about, to give the young fighter pilot combat experience in the absence of combat.”²¹

Since its inception, Red Flag has incorporated numerous initiatives which have broadened the scope and enhanced the quality of training provided. A few of these initiatives include: updating the Nellis Range Complex with current threat arrays; expanding target arrays to simulate regionally oriented facilities; incorporating newer electronic countermeasures equipment; installing an optical bomb scoring system; installation of a computerized mass debriefing system to reconstruct mission scenarios; tailoring mission scenarios to a unified command's area of responsibility; and upgrading of the dedicated adversary aircraft to reflect a more current threat. Several of these initiatives have received further qualitative improvements which reemphasize the concept of continuous improvement. Similar improvements have been incorporated at the US Army's National Training Center (NTC), where USAF crews participate in Air Warrior exercises.

Air Warrior

Air Warrior is the USAF's participation in a series of 18 day close air support (CAS) training exercises with the US Army. Air Force units are hosted by the 549th Joint Training Squadron at Nellis AFB, Nevada. These exercises integrate USAF airpower elements into realistic ground battles which take place at the NTC training facilities on Fort Irwin, California.

The NTC began operations in 1981 with the objective of providing realistic battalion-level, combined-arms tactical training to Army units. Since January 1987, the NTC has made qualitative improvements in implementing former Army Chief of Staff General John Wickham's direction for realistic combat training. The training “is intended to prepare both Active and Reserve Component forces to fight in a joint and combined environment at tactical and operational levels of war.”²² Units participate in simulated force-on-force battles where the integration of live-fire exercises, brigade-level command element simulations, and Air Force fighters provide combat realism.

Air Force crews benefit from this exercise through exposure to the problems of providing CAS to ground forces on the battlefield, while training Army field commanders how to coordinate air support and artillery fire. Both of these training aspects

demonstrate the real world difficulties of getting air support to the battlefield and the requirement for careful planning. Realism during Air Warrior includes live-fire munitions employment and a ground array of air defense weapons capable of simulating surface-to-air missiles and antiaircraft artillery which could illuminate the sky over the battlefield. The realism and benefit of this training is summed up by a Vietnam combat experienced pilot whose unit recently participated in Air Warrior. “I’d say a pilot’s chances of coming back alive are at least 1,000 times better than they were in Vietnam. By comparison, the training pilots receive here is vastly superior to what we got going into Vietnam - Desert Storm proved that. The small number of pilots we lost over there versus a comparable period in Vietnam was incredible. That is a credit to these training programs.”²³

As is experienced in Red Flag, the training received in Air Warrior helps commanders assess the warfighting capability of their unit. This training is a result of Air Force and Army initiatives to provide challenging CAS exercises on a realistic battlefield. Additionally, it allows both services to address joint warfighting and interoperability issues in a realistic combat environment. Just as service-specific training can be undermined by the injection of unqualified personnel, joint training can prove to be ineffective if the individuals or units are unskilled in their service expertise.

CHAPTER IV

JOINT TRAINING: IT'S VALUE AND FUTURE

The Goldwater-Nichols DOD Reorganization ACT of 1986 was aimed at compelling the Armed Forces to fight more readily as a joint force, to improve on interoperability issues, and to avoid the tragedies which come from incomplete planning or a lack of preparation. In this period of declining defense budgets and shrinking force structures, joint warfighting is a more cost effective strategy than funding redundant capabilities in each service. Ongoing analyses of the Desert Storm successes continue to reinforce the observation that the nature of warfare in the modern era is synonymous with joint warfare.²⁴

Initially, the legislating of joint operations was viewed by the services in a less than favorable light. They maintained the perspective that it was far easier to conduct single service operations than to coordinate multi-service warfighting. Single service activities involved personnel with a standard frame of reference, a service specific lexicon, and a common operational orientation. When operations with another service were conducted, standard operating procedures could no longer be assumed. Consideration had to be given to the differences in service doctrine and operational methods. If they were not properly addressed, a joint operation could be severely hampered or rendered ineffective simply because the individuals involved didn't understand the other services, capabilities or methodologies.²⁵ When the Goldwater-Nichols legislation went into effect, the Services were forced to comply.

"Institutional changes in the wake of the Goldwater-Nichols Act have greatly increased military effectiveness by integrating warfighting capabilities under the rubric of jointness."²⁶ As a result of this legislation, one of the many responsibilities The Joint Staff acquired was for the development of joint training and exercises.

The primary purpose of joint training is to prepare the Armed Forces to fight and win.²⁷ The goal is to operate successfully in a variety of situations ranging from war to operations other than war. Fighting the Nation's wars remains the highest priority of the Armed Forces. Accordingly, training U.S. forces to fight and win is one of the highest training priorities. The objective is to train the way you expect to fight.²⁸ To be effective, the training must be based on concepts likely to be employed in war or operations other than war.²⁹

Joint training reinforces joint doctrine and offers a common ground from which to plan and operate. It creates opportunities where interoperability issues can be addressed, resolved, and ultimately implemented in a plan where each service's capabilities complement one another. The objective is to instill jointness as an irreversible trend in military affairs.³⁰ This can only be done by reshaping the way the Armed Forces think about and train for war.³¹ As General MacArthur once said "In no other profession are the penalties for employing untrained personnel so appalling or so irrevocable as in the military."³² A joint orientation adds yet another dimension to realistic combat training, one which can further improve the effectiveness of airpower. Joint training exercises address interoperability issues, while training in a realistic environment pattern the way the Armed Forces plan to fight.

Joint Training Exercises

Joint exercises focus on those events which prepare combatant forces or staffs to respond to the operational requirements established by a joint commander to accomplish his assigned mission. A sharp mission focus is critical to both the effectiveness and efficiency of joint training exercises.³³ Today's, joint exercises put the Armed Forces' hardware, personnel, doctrine, training, and plans through rigorous employment tests. However, this was not always the case. Prior to World War II joint exercises were very rare. When they did occur, more often than not, they pitted the assets of one service against those of another. Although many of these "joint" training activities did occur, they were not designed as integrated joint exercises; but they were the first halting steps toward future joint operations.³⁴ In the interwar years between World War II and the Korean War, the Army and Air Force conducted some rather limited joint training because they did not receive adequate support from service component commanders or the theater commander. The various interservice controversies of the 1947 to 1949 period further hampered the conduct of joint exercises.³⁵ To say the Armed Forces were unprepared to conduct joint warfighting operations at the outset of the Korean War is a gross understatement.

Following the Korean War, the services gradually admitted there were significant gaps in their warfighting capabilities that could be remedied only if they worked together. Their intentions were good, but their focus was too parochial and often misguided because of service shortcomings. Many of the exercises were directed toward equipment familiarization. Quite often the command lines were unclear resulting in unnecessary interference by joint commanders into the affairs of component commanders.³⁶ This situation improved very little up to and during the Vietnam War.

In the post-Vietnam environment, joint exercises such as Team Spirit, Blue Flag, Cope Thunder, Red Flag and Air Warrior have drawn large-scale multiservice participation. In spite of the progress made in integrated planning, many of the old problems kept recurring. Problems such as parochialism, which rationalized the importance of one component's mission at the expense of another's mission. Another problem was the retention of a force employment planning cell in a service component rather than at the joint command which would benefit all the joint force components.³⁷ Although some progress was made through previous joint exercises, it was not until Desert Storm was fought that the services fully realized the advantages of joint warfighting and the importance of interoperability.

Desert Storm focused the attention of the services on the role of the Joint Force Air Component Commander (JFACC) in controlling the air assets. The services' interdependence on aerial refueling and suppression of enemy air defense assets, combined with the combat debut of the Army's Tactical Missile System and the USAF's Joint STARS platform have all forcefully emphasized the need for true jointness. Joint exercises are the only way to ensure that old shortcomings are remedied by new solutions.³⁸

Although much attention has been given to joint air operations since Desert Storm, there still remains a shortage of joint, combat experienced warfighters in both the unit and staff positions. Exercises have been conducted at all levels within the services and unified commands to implement joint doctrine for air operations and to orient staffs on the emerging concept. The exercises have been relatively brief and invariably involved

new procedures and doctrine on each occasion. No matter how well planned, they have achieved only limited success in building a trained cadre.³⁹ In southwest Asia, the Operation Southern Watch staff are gaining invaluable experience in joint combat operations while enforcing the no-fly zone imposed by U.N. Security Council resolutions. This Joint Task Force (JTF) which is comprised of Army, Navy, Air Force, Royal Air Force and French Air Force members is a model for joint and combined operations.⁴⁰ The JTF personnel solve problems, provide training and experience first-hand the need to blend specific service strengths to accomplish the mission as a result of their limited resources. Each service and allied element of the JTF realizes they can not accomplish their mission alone and that they are each important contributors to the overall success. This balancing of service strengths is a major benefit of joint and combined operations which future leaders must remember. The success of Operation Southern Watch can be measured in various ways aside from daily enforcement of the no-fly zone.⁴¹ The ultimate value of the operation will come from the knowledge and experience that personnel have gained from their participation and ability to work jointly for the execution of the mission.⁴²

In the coming years, future military operations will show promise for joint forces to take a major role. A lack of joint training could significantly inhibit the warfighting CINCs' ability to counter a regional threat or conduct operations other than war. A notable lesson from Desert Storm indicates that US involvement in future conflict scenarios will likely include coalition and combined activities. Combined/coalition activities imply jointness with its innate requirements for interoperability and integration of effort.⁴³ Cohesive joint operations are important to conflict resolution. "Campaigns of the US Armed Forces are joint; they serve as the unifying focus for our conduct of warfare."⁴⁴ Although Desert Storm brought a renewed interest in joint operations, the services' commitment to joint training environments requires greater emphasis.

Joint training offers a tremendous opportunity to leverage each services' existing training programs. It creates economies of scale that make defense more affordable, it provides cumulative power to resist aggression, and it draws consensus for common goals and formal commitments. Future joint operations will require further integration of service facilities and training to focus on joint warfighting and operations other than war. These aspects of joint warfighting clearly portray the benefits of a tailored, quality oriented training commitment.

Forces that are integrated and trained for joint operations will be more efficient and effective in executing their assigned mission. Those forces which have participated in realistic joint training exercises give the warfighting CINC a qualitative edge gained from their training - an increased flexibility, greater unity of effort, and the ability to amass firepower quickly. This edge allows the CINC to tailor his forces as necessary to defeat the enemy, having confidence in the joint forces' ability to complete assigned taskings. Integration of joint and allied forces into USAF exercises increases exposure to the joint and coalition warfighting forces of the future, their complementary military capabilities, and places an emphasis on economy of force. Efficiency within the current resource-constrained environment, coupled with the military drawdown, requires the services to incorporate jointness in their training to be effective in future operations. This fact is evident upon review of the Gulf War. A single service no longer has the resources nor capabilities of the past to carry out the diverse taskings of the future without

assistance from its sister services. The armed forces must create opportunities for joint training and structure their training facilities accordingly. By taking the initiative to develop tactics, techniques, and operating procedures during joint training exercises, each warfighting unit learns the importance of integrating into the CINC's plan while exploiting their weapon systems capabilities. Additionally, this training helps aircrews prepare mentally for the rigors of combat as they continually refine their warfighting skills. The services' benefit by remaining informed of the diverse threats that may be encountered around the world, by being able to address the interoperability issues which may arise, and by reducing force vulnerability through realistic combat training.

Interoperability

As previously stated, continual improvement requires wise investing of limited resources in an effort to improve the product. In today's austere budget climate and joint warfighting environment, training and equipment cannot be single-service unique. The training and hardware incompatibility problems experienced by joint tactical air components at Midway and in the Solomons during World War II would prove disastrous in today's joint arena. Understandably, both training and hardware tended to be built around service-specific missions and tasks. That can no longer be the case. The Armed Forces are too interdependent, not to mention budget constrained, to focus only on service-specific missions. Service interoperability is definitely an issue when it comes to joint warfighting. At this point it is worth mentioning a few of the interoperability lessons learned from previous joint campaigns. They are:

1. A complete joint command and control system has to be developed and exercised in peacetime. It must have the full support of all the services.
2. This system should be rapidly deployable and structured to serve any Joint Force Air Component Commander, regardless of service origin.
3. Service cross-training should be encouraged. It builds flexibility in combat planning and provides exposure to the differing service command systems.
4. Using older equipment effectively may be more productive than using new equipment poorly.⁴⁵

The increased emphasis on joint interoperability issues directs scarce resources towards the joint warfighting arena where the U.S. Armed Forces can expect to operate more often in the future.

In future military operations the U.S. Armed Forces will need to operate in joint and combined contexts to offset service limitations.⁴⁶ They will also need to continue the refinement and development of combat tactics which continually incorporate innovation, technology, leadership vision, and the lessons learned from previous military operations. They must continue to stress realistic combat training which exposes combat forces and combat support forces to the myriad of missions possible in the international environment. The services will be required to further integrate their facilities and training methodologies to focus on joint warfighting and joint operations other than war. As part of this process "modeling and simulation technology should be exploited to enhance joint

and combined training and doctrine. It offers a tremendous opportunity to leverage our existing training at all levels through enhancement or even replacement.”⁴⁷ The further integration of joint and allied forces into training exercises promotes realism and places an emphasis on economy of force in a declining budget environment. Tomorrow’s challenges will reinforce the point that jointness is valued for its synergism, no matter how large or small the force.⁴⁸

CHAPTER V

TOMORROW'S CHALLENGES

The “Two Major Regional Conflict (2 MRC)” Forces

The Bottom-Up-Review (BUR) used four broad classes of potential military operations to evaluate the adequacy of future force structure alternatives:

1. Major regional conflicts (MRCs).
2. Smaller-scale conflicts or crises that would require U.S. forces to conduct peace enforcement or intervention operations.
3. Overseas presence--the need for U.S. military forces to conduct normal peacetime operations in critical regions.
4. Deterrence of attacks with weapons of mass destruction, either against U.S. territory, U.S. forces, or the territory and forces of U.S. allies.⁴⁹

This list is not all-inclusive. The intent of the BUR was to provide forces and military support for other types of operations, such as peacekeeping, humanitarian assistance, and to counter international drug trafficking. However, while such operations call for small numbers of specialized forces or assets, they are not likely to be major determinants of general purpose force structure. However, they could require specialized training and equipment.⁵⁰

Since the end of the Cold War, the focus has been on the need to project power into regions important to U.S. interests and to defeat potentially hostile regional powers, such as North Korea or Iraq. Every war that the United States has fought has been different from what defense planners envisioned. For example, the majority of the bases and facilities used by the United States and its coalition partners in Operation Desert Storm were built in the 1980s, when we envisioned a Soviet invasion through Iran to be the principal threat to the Gulf region. Also in planning forces capable of fighting and winning major regional conflicts there is a tendency to prepare for past wars. History suggests that we most often deter the conflicts we plan for and actually fight the ones we do not anticipate. The first priority in preparing for regional conflicts is to deter them from ever occurring. Our overseas presence forces and operations, joint exercises, and other military capabilities all serve to deter potential regional aggressors from ever contemplating attack.⁵¹ Therefore, if deterrence fails and conflict ensues, our forces must be trained to the highest possible level to execute the planned strategy to fight and win America's wars. Now with a much smaller force, it is even more vital that our forces are trained to effectively win in joint and combined operations . Smaller force levels leave us with a higher risk and less margin for error in strategy execution. While a two MRC scenario is still the military's most challenging in terms of forces and training, the increased number of peacetime missions is on the rise in this new era.

Military Operations Other Than War

Since the end of the Cold War the U.S. has been involved in eighteen Military Operations Other Than War (MOOTW). They are costly, open ended deployments.

MOOTW has received much criticism while at the same time been heralded as the wave of the future. Whether one wishes to deter, defend or attack, sound military capability and readiness for war are a prerequisite. Degrading combat skills and the ability to deploy and employ military forces through numerous "peacekeeping" operations in MOOTW may be exactly the opposite of what we should in fact do. There is currently very little training or doctrine for these operations. What is available is either very general or highly selective and uneven. The military must be prepared to do "operations other than war" particularly when not faced with a major threat of war. Most importantly, since the military is the symbol and essence of a state's power, it should be deployed and employed with great care. But it should not be used inappropriately without proper training guidance for MOOTW.⁵²

The new Joint Training Policy, CJCSI 3500.01, dated 21 November 1994, does give some joint training policy guidance for MOOTW. MOOTW are focused on military operations that deter war and promote peace. MOOTW missions cover a variety of situations and may or may not require the use, or threat of the use, of force. The complexity of missions, operating environments, and limitations on the use of coercive force demand preparation. Commanders, however, cannot train for every mission in the book. Since commanders are faced with significant resource constraints, and high optempo, they must focus on assigned and anticipated missions, establish priorities, and assess risks. Although preparing U.S. forces to fight and win wars remains the highest national military training priority, people and units must be prepared for other missions as well. Mission focus is the rule. Accordingly, appropriate training--individual as well as collective--must be planned and implemented, consistent with assigned missions and priorities. This new joint training policy is designed for the management of risk commensurate with national priorities. This policy is intended to ensure the U.S. has adequate capabilities to fight and win, if deterrence fails. The policy recognizes, however, that there are some attitudes and skills required for MOOTW which are different from those required for warfighting. Special skills must be identified and supported by developed doctrine, tactics, techniques, and procedures. Advance preparation and training of forces is essential to ensure mission success. Assigned or anticipated missions, however, must provide the focus for MOOTW training. With declining resources, there is little justification for preparing for missions that are not assigned or do not merit sufficient priority to displace other, more essential, responsibilities. Individual Services will conduct appropriate peace operations and humanitarian assistance training in accordance with title 10, U.S. Code responsibilities.⁵³ Not only will MOOTW impact our readiness to fight high intensity conflicts, but a new threat to our joint capabilities could take effect in the new era.

New Threat to Joint Training

While the services each took great pride in their accomplishments in Desert Storm and gave their contribution to jointness its due, there is distressing evidence that cooperation may decline in the renewed competition for the shrinking defense dollar. Tensions have arisen in the process of putting together reports to Congress on the Gulf conflict, in efforts to exploit or protect doctrinal positions for single-service benefit, and in the program adjustments required by reduced fiscal ceilings. The services' after action reports read more like public relations documents than like serious and thoughtful

analyses of what happened and why. There was a tone of advocacy and not so subtle emphasis of the perceived shortcomings of other services in these articles and documents.⁵⁴

These threats to further improvement in the conduct of joint air operations should not be overstated because there has been considerable effort underway within and across the services in training to better prepare for working jointly in future operations. The Navy and the Air Force have established a joint working group to address a long list of interface problems between the two services. Added emphasis has been given to creating and updating joint publications that address air command and control as well as other issues. The chairman of the Joint Chiefs of Staff is using his authority under the Goldwater-Nichols Act to make decisions on command and control issues. Dialogue is necessary to achieve progress toward solutions which must accommodate the special capabilities that each service brings to joint operations and training.⁵⁵

“Our Armed Forces are the best in the world. We must ensure that they remain the best, but on a much more modest diet. The heart of the challenge is this: as we move into an uncertain future we must get better as we get smaller.”⁵⁶ To get better as the military gets smaller is the focus of an expanded Joint Requirements Oversight Council (JROC) headed by the Vice Chairman of the Joint Chiefs of Staff.

Joint Requirements Oversight Council (JROC)

Admiral Owens, USN, Vice Chairman, JCS, said, “We must maintain a ready force with superior warfighting capabilities as force structure and budgets get smaller and, because of changes in the world, as operational demands evolve. We must manage the largest decline in military resources since World War II as we maintain the flexibility to meet the demands of vigorous engagement. The Joint Requirements Oversight Council (JROC) has emerged as a principal forum in which senior military leaders address requirements from a joint perspective.”⁵⁷ Building the force of the future requires harnessing the revolution in military affairs (RMA) brought about by technological leaps in surveillance, command and control, and longer range precision guided munitions. Building a joint military capability to harness the RMA will not be easy. History reveals a tendency for the services to diverge rather than coalesce during periods of relative fiscal austerity. The nation cannot afford and will not benefit if this traditional pattern is followed.⁵⁸

In the past, JROC, focusing on initial stages of the acquisition process, has not been seen as an integral part of the programming process and has not been exercised with the full authority vested in CJCS and VCJCS by Goldwater-Nichols. Now when it is critical that the synergism of a joint approach move to the fore in military planning and programming, the legal authority exists. Indeed, the law requires it. Current changes in the process revolve largely around JROC and the Chairman's Program Assessment (CPA). Briefly, the scope and significance of JROC discussions have been expanded and linked to CPA which, in turn, will fulfill its congressionally mandated destiny to articulate the joint, collective position of the services with respect to joint requirements and readiness. This is an important evolution insofar as the overall process inside the Pentagon is concerned since it can provide the Secretary of Defense with a single, authoritative military view of key issues, rather than the past unconsolidated and competing military views.⁵⁹

Positioning the JROC in a more central position required major changes in staffing and analytical support. Nine assessment areas were created with a charge to separate elements of the Joint Staff to coordinate each assessment with the participation of a wide range of agencies and research organizations in each assessment. One of the nine assessment areas is joint readiness. This area not only will add focus to the need to ensure a high state of joint readiness, but also to ensure that new systems requirements are interoperable among the services. The assessment process will support the JROC in two ways. It will address the issues that are of particular importance to the JROC, responding to its guidance and initiative. The process will also act as an innovation engine, seeking to discover and propose to the JROC the ways in which the capabilities of the various services can be integrated to provide more joint, synergistic solutions to military problems. JROC, largely through the assessment process, helped CJCS formulate recommendations for the Secretary of Defense on obtaining better joint warfighting capabilities for the FY96-FY01 defense program than could be found in the sum of service Program Objective Memoranda (POMs).⁶⁰ This assessment process will place the proper emphasis on joint training that is required in this era of reduced funding and high operations tempo.

The changes implied in expanding JROC are significant. JROC will not be simply another military committee in which the members participate strictly as representatives of their services, making decisions and recommendations that reflect the lowest common denominator of sum of service requirements. Collectively, JROC with the CINCs constitutes a repository of profound military insight and experience, and the rank of its members permits JROC to act as a corporate body, capable of developing consensus views that transcend individual service perspectives. Articulating this joint perspective at the upper levels of military leadership has the potential of bringing about change in a new era. It is a fundamental part of our response to the revolution in military affairs that confronts the military today.⁶¹ This JROC process will bear fruit in future joint operations and training in increasing the interoperability of weapons systems creating an even more formidable joint military force for America.

CHAPTER VI

CONCLUSION

The integration of joint and allied forces into USAF exercises is a qualitative step in realism which enhances exposure to the joint and coalition warfighting forces of the future, their complementary military capabilities, and places an emphasis on economy of force in a declining budget environment. Uncertainty in the world's geopolitical climate, budget constraints, and the drawdown of the armed forces necessitates the USAF and its sister services operate more frequently as part of a joint or combined force. No longer can the services take actions independent of each other. Jointness brings the capabilities of the air, land, and sea forces together to fulfill the requirements of US national strategy.

Jointness in the military should not only involve operations of more than one service, but also the interdependent operations and team effort critical to achieving a common goal. There are several reasons why jointness is so important to warfighting today. First, no one service's component has all the capabilities required to accomplish operations across the operational continuum. Second, the military services have experienced a severe force drawdown and those remaining few must be used jointly to ensure their most effective employment. Third, the probability is low that in today's environment any operation will be taken on a unilateral basis. To quote Gen John W. Vessey, Jr., former Chairman of the Joint Chiefs of Staff (JCS), "Joint operations [occur] when the unique capabilities of two or more services come together to make the whole greater than the sum of the parts in order to kick the tar out of the enemies of the United States."⁶²

A comprehensive and long-term joint training program is even more important in today's fiscally constrained environment. Such a program would allow service components to communicate their concerns and biases to each other. The U.S. Armed Forces must overcome service biases by pursuing and effective joint training program that makes maximum use of all its resources. Comprehensive joint training also decreases the effects of the "friction of war." Training can mean the difference between winning and losing. Gen Vessey accurately pointed out that "Training is the mucilage that makes the peacetime forces, their equipment and doctrine the cohesive ready force needed to deter war or defend the nation if deterrence fails."⁶³

Admiral William Crowe, a former Chairman of the JCS, put it this way: "I am well aware of the difficulty of shedding...individual service orientations and addressing the broader concerns of the joint arena. The fact is, however, that the need for joint operations, joint thinking, and joint leadership has never been greater as we meet the global challenges and in order to get the most of our finite resources."⁶⁴

"While the Air Force vision calls for building the world's most respected Air Force, it is useful to remember that the USAF has been the world's most respected air force for some time now."⁶⁵ Quality initiatives have been occurring in the USAF for many years, we just termed it "strong leadership." History has taught us that the human dimension is vital to success on the battlefield. As Secretary Rice pointed out in an Air Force white paper, The Air Force and US National Security: Global Reach-Global Power "Quality people are critical to high quality forces." It was this strong leadership which continually improved the training that resulted in the current realistic combat training programs. Realistic combat training provides a framework to practice employment

techniques before the real shooting begins. In the USAF, the genesis of this training comes from initiatives designed to improve warfighting capabilities. Realistic training, especially within a joint context, ensures our forces are better team members and that training funds are wisely spent. Realistic combat training, with emphasis on joint interoperability, has improved the USAF's warfighting capabilities and enhanced readiness. It is a force enhancer which USAF units take into the joint arena.

NOTES

1. Lynch, David J. "The Air Force Takes Stock," *Air Force Magazine*, Vol. 78, No. 2, February 1995, p. 24.
2. Avoiding Future Unreadiness, *Defense* 94, Issue 4, 1994, p 15.
3. *Ibid.*, p. 18.
4. Lynch, p. 24.
5. Tirpak, John. "The Word is Joint," *Air Force Magazine*, Vol. 77, No. 11, November 1994, p. 66.
6. Shalikashvili, John M. "A Word from the Chairman," *Joint Forces Quarterly*, No.5, Summer 1994, p. 5.
7. Mets, David R. "Checking Six Is Not Enough: The Evolution and Future of Air Superiority Armament," CADRE Paper Special Series, Maxwell Air Force Base, AL: Air University Press, 1992, p. 22.
8. Sorenson, David S. "QAF: A Skeptical View," *Leadership For the 90's and Beyond: A Quality Approach*, Maxwell Air Force Base: Air University Press, September 1994, p. 147.
9. *Ibid.*, p. 152.
10. *Ibid.*, p. 149.
11. Herring, George C. *America's Longest War: The United States and Vietnam 1950-1975*, New York: Newberry Awards Records, Inc., 1986, p. 279.
12. Addington, Larry H. *The Patterns Of War Since The Eighteenth Century*, Bloomington, IN : Indiana University Press, 1984, p. 275.
13. Herring, p. 277.
14. *Ibid.*, p. 278.
15. Watson, Bruce W. and Tsouras, Peter G. *Operation Just Cause - The U.S. Intervention in Panama*, Boulder: Westview Press, 1991, p. 190.
16. Braybrook, Roy, *Air Power - The Coalition and Iraqi Air Forces*, Osprey Publishing Limited, London, 1991, p.61.

17. Shalikashvili, John M. "A Word from the Chairman," *Joint Forces Quarterly*, No. 5, Summer 1994, p. 4.
18. Mets, p. 25.
19. Avoiding Future Unreadiness, p. 18.
20. Colley, James A. II, *Red Flag - Is the Realism Worth the Cost*, Fort Leavenworth, Kansas, 1988, p. 20.
21. *Ibid.*, p. 44.
22. Donnelly, Edward P. *The Role of the National Training Center During Full Mobilization*, Fort Leavenworth, Kansas, 1991, p. 171.
23. Van Elsberg, Robert. "Air Warrior: Sharpening the Falcon's Claws," *Citizen Airman*, February 1993, p. 17.
24. United States Joint Chiefs of Staff, *Joint Doctrine Capstone and Keystone Primer*, 15 July 1994, p. 1.
25. Waddell, Donald E. III, "A Situational Leadership Model for Military Leaders," *Airpower Journal*, Vol. VIII, No. 3, Fall 1994, p. 39.
26. Binnendijk, Hans. "Challenges in a Time of Transition," *Joint Forces Quarterly*, No. 4, Spring 1994,
p. 6.
27. United States Joint Chiefs of Staff, *Joint Training Policy*, 21 November 1994, p. 18.
28. *Ibid.*, p. 1.
29. *Ibid.*, p. 5.
30. Binnendijk, p. 6.
31. United States Joint Chiefs of Staff, *Joint Doctrine Capstone and Keystone Primer*, 15 July 1994, p. 2.
32. United States Joint Chiefs of Staff, *Joint Training Policy*, 21 November 1994, p. 1.
33. *Ibid.*, p. 7.
34. Winnefeld, James A, and Johnson, Dana J, *Joint Air Operations-Pursuit of Unity in Command and Control, 1942-1991*, Annapolis, MD: Naval Institute Press, 1993, p. 160.

35. Winnefeld, p. 160.
36. Ibid., p. 170.
37. Ibid., p. 161.
38. Ibid., p. 161.
39. Nelson, Michael A. and Katz, Douglas J. "Unity of Control: Joint Air Operations in the Gulf - Part Two," *Joint Forces Quarterly*, No. 5, Summer 1994, p. 60.
40. Ibid., p. 60.
41. Ibid., p. 63.
42. Ibid., p. 63.
43. Avoiding Future Unreadiness, p 19.
44. United States Joint Chiefs of Staff, *Joint Pub 1 - Joint Warfare of the US Armed Forces*, 11 November 1991,
p. 45.
45. Winnefeld, pgs 167-168.
46. Gray, Colin S, "The Limits of Seapower: Joint Warfare and Unity of Conflict," *Joint Forces Quarterly*, No. 6, Autumn/Winter 1994-95, p. 60.
47. Avoiding Future Unreadiness, p. 14.
48. Canby, Steven L, "Roles, Missions, and JTFs: Unintended Consequences," *Joint Forces Quarterly*, No. 6, Autumn/Winter 1994-95, p. 72.
49. Apin, Les. Report On The Bottom-Up Review, Washington, D.C., Department of Defense, October 1993,
pgs 13-15.
50. Ibid., pgs 13-15.
51. Ibid., pgs 13-15.
52. Hammond, p. 8.
53. United States Joint Chiefs of Staff, *Joint Training Policy*, 21 November 1994, pgs. 7-8.

54. Winnefeld, pgs. 168-169.
55. Winnefeld, p. 169.
56. Shalikashvili, John M. "A Word from the Chairman," *Joint Forces Quarterly*, No. 6, Autumn/Winter 1994-95,
p. 6.
57. Owens, William A. "JROC: Harnessing the Revolution in Military Affairs, *Joint Forces Quarterly*, No. 5, Summer 1994, pgs. 55-56.
58. Ibid., pgs. 55-56.
59. Ibid., pgs. 56-57.
60. Ibid., p. 57.
61. Ibid., p. 57.
62. Curtis, Thiery G, *Special Operations-Joint Training*, Air University Press, Maxwell AFB, Alabama, January 1993, p. 17.
63. Ibid., pgs. 18-20.
64. Barlow, Jason B. "Interservice Rivalry in the Pacific," *Joint Forces Quarterly*, No. 4, Spring 1994,
p. 77.
65. Sorenson, p. 143.

BIBLIOGRAPHY

Addington, Larry H. *The Patterns Of War Since The Eighteenth Century*, Bloomington, IN: Indiana University Press, 1984.

Air Force Quality Institute, *Process Improvement Guide*, Maxwell Air Force Base, AL, September 1994.

Air Force Quality Institute, *The Quality Approach*, Maxwell Air Force Base, AL, September 1994.

Apin, Les. *Report On The Bottom-Up Review*, Washington, D.C., Department of Defense, October 1993.

Avoiding Future Unreadiness, Defense 94, Issue 4, 1994.

Baldwin, R. Joe. "The Leadership Imperative in a Transforming Air Force," *Air Power Journal*, Fall 1993.

Barco, Charles T. "Valuing Leadership in an Era of Prophets, Politicians, and Pugilists" *Airpower Journal*, Maxwell Air Force Base, AL, Vol. VIII, No.3, Fall 1994.

Barlow, Jason B. "Interservice Rivalry in the Pacific," *Joint Forces Quarterly*, No. 4, Spring 1994.

Barnes, Lee R. "Almost Quality: A Case Study of Problem Solving at that National Training Center," *Senior Leaders View Quality: Selected Quality Air Force Essays from the Class of 1994*, Maxwell Air Force Base, AL, April 1994.

Binnendijk, Hans. "Challenges in a Time of Transition," *Joint Forces Quarterly*, No. 4, Spring 1994.

Brannum, E. Smith and Spencer, Stephen. *Air War College Cold War Digest*, Maxwell Air Force Base, AL: Air University, 1994.

Braybrook, Roy. *Air Power - The Coalition and Iraqi Air Forces*, Osprey Publishing Limited, London, 1991.

Canby, Steven L. "Roles, Missions, and JTFs: Unintended Consequences," *Joint Forces Quarterly*, No. 6, Autumn/Winter 1994-95.

Colley, James A. II, *Red Flag - Is the Realism Worth the Cost?* Fort Leavenworth, Kansas, 1988.

Curtis, Thiery G, *Special Operations-Joint Training*, Air University Press, Maxwell AFB, Alabama, January 1993.

Donnelly, Edward P. The Role of the National Training Center During Full Mobilization, Fort Leavenworth, Kansas, 1991.

Freeman, Waldo D, Hess, Randall J. and Faria, Manuel. "The Challenges of Combined Operations," Military Review, November 1992.

Friedman, Norman Desert Victory - The War For Kuwait, Annapolis, MD: Naval Institute Press, 1991.

Gray, Colin S. "The Limits of Seapower: Joint Warfare and Unity of Conflict," Joint Forces Quarterly, No. 6, Autumn/Winter 1994-95.

Hammond, Grant T. "Military Operations Other Than War (MOOTW)," Air War College Newsletter, Vol. 14, No. 24, Winter 1995.

Herring, George C. America's Longest War: The United States and Vietnam 1950-1975, New York: Newberry Awards Records, Inc., 1986.

Jane's Interview, Jane's Defense Weekly, Vol. 19 No. 25, June 1993.

Kapstein, Ethan B. Downsizing Defense, Washington, D.C.: Congressional Quarterly Inc., 1993.

Loh, John M. ACC Quality, Langley Air Force Base, VA: Air Combat Command, Summer 1993.

Lynch, David J. "The Air Force Takes Stock," Air Force Magazine, Vol. 78, No. 2, February 1995.

Mets, David R. "Checking Six Is Not Enough: The Evolution and Future of Air Superiority Armament," CADRE Paper Special Series, Maxwell Air Force Base, AL: Air University Press, 1992.

Murphy, Timothy G. "A Critique of the Air Campaign," Air Power Journal, Spring 1994.

Nelson, Michael A. and Katz, Douglas J. "Unity of Control: Joint Air Operations in the Gulf - Part Two," Joint Forces Quarterly, No. 5, Summer 1994.

Owens, William A. "JROC: Harnessing the Revolution in Military Affairs," Joint Forces Quarterly, No. 5, Summer 1994.

Shalikashvili, John M. "Strategy - At the Heart of the Budget," Defense 94, Issue 3, 1994.

Shalikashvili, John M. "A Word from the Chairman," Joint Forces Quarterly, No. 5, Summer 1994.

Shalikashvili, John M. "A Word from the Chairman," Joint Forces Quarterly, No. 6, Autumn/Winter 1994-95.

Skinner, Michael and George Hall, Red Flag - Air Combat for the 1990s, Pesido Press, Novato, California, 1992.

Sorenson, David S. "QAF: A Skeptical View," Leadership For the 90's and Beyond: A Quality Approach, September 1994.

Tilford, Earl H. Jr, Setup - What the Air Force Did in Vietnam and Why, Maxwell Air Force Base, AL: Air University Press, 1991.

Tirpak, John. "The Word is Joint," Air Force Magazine, Vol. 77, No. 11, November 1994.

United States Joint Chiefs of Staff, Joint Doctrine Capstone and Keystone Primer, 15 July 1994.

United States Joint Chiefs of Staff, Joint Pub 1 - Joint Warfare of the US Armed Forces, 11 November 1991.

United States Joint Chiefs of Staff, Joint Training Policy for The Armed Forces of the United States, 21 November 1994.

Van Elsberg, Robert. "Air Warrior: Sharpening the Falcon's Claws," Citizen Airman, February 1993.

Waddell, Donald E. III, "A Situational Leadership Model for Military Leaders," Airpower Journal, Vol. VIII, No. 3, Fall 1994.

Watson, Bruce W. and Tsouras, Peter G. Operation Just Cause - The U.S. Intervention in Panama, Boulder: Westview Press, 1991.

Winnefeld, James A. and Johnson, Dana J. Joint Air Operations-Pursuit of Unity in Command and Control, 1942-1991, Annapolis, MD: Naval Institute Press, 1993.